1. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(3 - 6i)(-2 + 8i)$$

A. $a \in [-56, -49]$ and $b \in [12, 15]$

B. $a \in [41, 46]$ and $b \in [-39, -34]$

C. $a \in [41, 46]$ and $b \in [33, 44]$

D. $a \in [-9, -5]$ and $b \in [-54, -45]$

E. $a \in [-56, -49]$ and $b \in [-13, -7]$

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2. Simplify the expression below and choose the interval the simplification is contained within.

$$12 - 6^2 + 3 \div 15 * 2 \div 4$$

A. $[-23.94, -23.85]$

B. $[47.97, 48.03]$

C. $[48.03, 48.14]$

D. $[-24.03, -23.94]$

E. None of the above

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3. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{-2244}{12}}i + \sqrt{165}i$$

A. Not a Complex Number

B. Pure Imaginary

C. Rational

D. Nonreal Complex

E. Irrational

4. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{38025}{225}}$$

A. Not a Real number

B. Integer

C. Whole

D. Rational

E. Irrational

5. Simplify the expression below and choose the interval the simplification is contained within.

$$14 - 10^2 + 13 \div 20 * 8 \div 5$$

A. $[-86.15, -85.68]$

B. $[114.67, 115.06]$

C. $[113.95, 114.92]$

D. $[-85.12, -83.54]$

E. None of the above

6. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{15876}{36}}$$

A. Irrational

B. Not a Real number

C. Whole

D. Integer

E. Rational

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7. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{54 + 55i}{-2 - 3i}$$

A. $a \in [-273.5, -271.5]$ and $b \in [3, 4.5]$

B. $a \in [-22, -20]$ and $b \in [3, 4.5]$

C. $a \in [-22, -20]$ and $b \in [51, 52.5]$

D. $a \in [-27.5, -26]$ and $b \in [-18.5, -17]$

E. $a \in [3.5, 6]$ and $b \in [-21.5, -20.5]$

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8. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{72 + 55i}{7 - 3i}$$

A. $a \in [11, 12]$ and $b \in [2.5, 3.5]$

B. $a \in [338.5, 340.5]$ and $b \in [8.5, 12.5]$

C. $a \in [5.5, 6.5]$ and $b \in [8.5, 12.5]$

D. $a \in [5.5, 6.5]$ and $b \in [600, 603]$

E. $a \in [10, 10.5]$ and $b \in [-19.5, -17]$

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9. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-2 + 9i)(-5 + 6i)$$

A. $a \in [58, 66]$ and $b \in [-40, -32]$

B. $a \in [-47, -43]$ and $b \in [-58, -56]$

C. $a \in [10, 12]$ and $b \in [49, 55]$

D. $a \in [-47, -43]$ and $b \in [55, 60]$

E. $a \in [58, 66]$ and $b \in [32, 37]$

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10. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{-18}{2} + \sqrt{-36}i$$

A. Irrational

B. Pure Imaginary

C. Rational

D. Not a Complex Number

E. Nonreal Complex
